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Editorial.

AFTER THE WAR.

In the Press and in all places where men congregate—at the club, in the market and in Parliament—the phrase "after the War" is being used in reference to future contemplated actions. It is assumed rightly that it will be wise to put forth all the energy and scientific acumen we are capable of in order to hold our own in productive, trade, and financial circles. The business, to be carried out satisfactorily, will have to be in the hands of master minds and a willing people. The welfare of every section of the community will be bound up in intelligent, forceful, energetic and scientific plans of organization and advance for the future. The veterinary profession will be chiefly concerned and interested in the expansion and re-animation of agriculture, although the prosperity of all activities will affect it materially. The revival of agriculture means men for the land and land for the men, security for the farmer, good wages for the agricultural labourer, more scientific methods of cultivation, more breeding of live-stock, and, if effort and not drift is to be essential in the matter, an adoption of the recommendations of the Minority Report of the recent Government Committee appointed to consider the settlement and employment on the land of discharged soldiers and sailors. It is no use writing or talking about methods to be adopted "after the War" if we only revert to a continuance of ways and means prevalent "before the War."

The initial step in any agricultural revival lies with the Government. We are always *led* by politicians. Whether it is the best way or not, the fact remains. When will the people recognize the full force of this, and that it is they who elect their leaders? In dealing scientifically with the agricultural question, we want a great awakening to the importance of the matter among the whole Parliamentary body. Then we need an enthusiastic discussion and carrying out of the best measures to stimulate and increase the output of live-stock

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and farm produce. Agriculture seems to be one of the domains whose welfare, stability and progress ought not really to depend on politics and vote-catching. The questions of its encouragement, fostering and flourishing are national and not party ones and should be dealt with nationally. The movement, to be successful, must not be crippled at the start by niggardly finance.

The bearing of education on agricultural matters needs looking at from a new view-point. The Minister of Education ought not to be required to devote his time chiefly to keeping peace in the Labour world, but to effect real progress in education, to spend his days and strength solely in service for the improvement of scientific and technological instruction. The improved education of the agricultural labourer so as to enable him to understand the scientific principles and methods on which the most modern cultivation is based, is one of the concerns of this chief. A steady supply of able, well-trained and zealous peasantry is needed. A direct application of rural teaching to the problems of the land, and a wise continuance of the education so as to interest and profit those going on the land is necessary. The farm school should be fitted to turn out practical and intelligent agriculturists and cultivators.

The creation of a Ministry of the Interior, as in France and Germany, would benefit agriculture and give it some of the required stimulus and help those who depend on the good state, liveliness and soundness of the industry for their support and livelihood are entitled to expect.

The national indifference to education, however, is very pronounced in our country, Scotland alone taking much interest in educational advance. If shibboleths and parrot cries, far too numerous in the past, are not to take the place of real, discerning effort, then there is serious, solid work to be done. The task is not trivial and insignificant. It means, for the most part, a change of heart and faith in the proletariat. It is a labour for giants in thought, organization and scientific discernment. If half the organizing ability expended in the obtaining of men and munitions for the War is spent "after the War" in measures to increase real live agricultural workers and peasant production then true advance will be made. The industry can never flourish as it should do unless a measure of the zeal, attention, and acumen evident in the present warlike operations is passed on "after the War" to the forces dealing with crop and live-stock production.

We trust that the British public will falsify Mr. G. Bernard Shaw's opinion and want many other things besides the one indicated in the answer to the following query: "Do you think that the War will make the British public want anything violently after it is over?—Yes, beer!" We hope that one of the things it will make a large number of them eager for will be land and work on the land. We desire, too, that what they may get through the politicians and the Treasury will be something more tangible and less illusory than the satisfaction of the M.P. "who heard an honourable Member smile."

We think veterinary surgeons ought to urge on their M.P.'s the importance of increasing agricultural and stock output. It is really far more vital to our welfare than the abatement of pains and penalties attached to the possession of a motor-car. G. M.

Original Communications.

MOLLITIES OSSIUM IN A "SHETLAND PONY": RÉSUMÉ OF DISEASES OF BONE NUTRITION.

By F. C. MAHON, M.R.C.V.S.
Chiswick, London, W.

(I).

Diseases of bone nutrition, otherwise known as non-inflammatory diseases of bone, occur occasionally in the domesticated animal, but apart from the dog, whose chief disease is "rickets," rarely osteoporosis, we chiefly find such disease relegated to the equine.

Reviewing (1), *fragilitas ossium or excessive fragility of bone*, proceeding (*a*) from changes in the animal matrix, (*b*) changes in the inorganic materials. The latter form is usually related to some antecedent inflammation of the bone; the cause of the former is not yet well made out. I have encountered this affection in marshy, low-lying country districts, especially parts of Somerset.

(2) *Rickets.*—Also a disease of nutrition affecting frequently the entire body, soft, as well as hard structures, therefore difficult of differentiation from that of mollities ossium. Rickets is characterized chiefly by delayed or arrested ossification: that is, true bone formation is rare except in parts. Mollities ossium, I take it, is true bone formation, undergoing subsequent changes of a characteristic nature, and a rare affection indeed. The causes of rickets are: (*a*) previous inflammation of bone. (*b*) Calcareous matter not deposited in sufficient amount. (*c*) Lime salts subject to excess of removal from peculiar changes occurring in the body. Debilitating influences, as defective dietary, bad sanitation, overwork, being chiefly responsible for its occurrence in our patients. The symptoms are in intimate relation to the physical, chemical, and histological

changes, which occur in the bones of the extremities, or in visceral structures affected in a direct or indirect manner.

(3) *Mollities Ossium.*—The subject chiefly of this article, and explanatory of my case, known as bone-softening, also as fatty or gelatiniform degeneration of bone. It is peculiar as to its subjects, attacking mares that are well advanced in gestation.

The process of decalcification commences in the interior of the bone, then extends outwards, the vascular and tubular elements undergoing the most marked alteration, with rapid cell production. Its results are increased liability to fracture, rather than bone-flexion.

The exact changes which occur in this state are not well understood, neither are the means which tend to ward it off satisfactorily determined.

(II).

(4) *Osteo porosis.*—This is the term which has been applied to rarefaction of bone tissue, increase in bulk without increase in actual weight. The pathology is not well understood, and its causation is largely a matter of supposition. Certain facts are, however, well known, but their relation to the progress of the disease uncertain.

It has been spoken of as rickets of adult animals, to which disease of bone nutrition it bears a close resemblance. Unlike rickets of the young, it shows less disposition to invade the bones of the extremities. In all cases it exhibits a preference to become located at an early stage of the disturbance in the bones of the head. When fully developed the physical characters of the bones change, the ends enlarge and lameness is a prominent feature. Besides the rarefaction of the true bone structure, the cartilages of incrustation are eroded, the periosteum and synovial membrane surrounding joints thickened, and of increased vascularity. The treatment, like its etiology, is very unsatisfactory.

(5) *Medullary, or Fibro-plastic Disease of Bone.*—This affection of bone tissue in the horse is chiefly encountered in the facial bones and in those originating in the interior extending outwards and invading the compact shell when fully developed. Its causation, although occasionally traceable to external violence, is more dependent upon indwelling predisposition.

In its entire clinical history malignancy is rather distinctly marked. Heredity is closely associated with its appearance, and it is disposed to extend more rapidly when surgical interference is adopted. Some cases of this have probably been confounded with the parasitic affection "actinomycosis." Treatment is unsatisfactory, seeing that attempts at cure are apt to be followed by more rapid spread of the affection.

These five bone diseases and conditions in many particulars closely approach one another, and it is only by *post-mortem* and microscopic examination one can determine their existence and differences.

Briefly I now pass to consider the case forming the title of my paper, and endeavour to show why I classify the same under the title and disease "Mollities Ossium." I tabulate the structures chiefly invaded by cancerous elements, viz., the epithelioma; (ii) scirrhous, fibrous, or chronic cancer.

(1) Epithelioma.

Characteristics.

Form : often friable.
Section : greyish-white when intersected with lines of fibrous tissue—turbid, liquid, crumpy, curdy.
Affects cutaneous or mucous surfaces.
Lower lip, anus, prepuce, muscle.
* Bone, tendons, lymphatic glands.
Rare in internal organs (man).

Scirrhous, Fibrous or Chronic Cancer.

(1) Large amount of stroma.
(2) Chronicity of growth.
(3) Rapid atrophy and progressive changes.
(4) Takes part in external parts generally.
(5) Cicatrization goes on, and the tumour becomes somewhat indurated.
(6) Causes obstruction and obliteration of blood-vessels, hence assists in development.
(7) On section : greyish-white, juicy granules, mucous cells possessing free nuclei.
(8) Female breast : alimentary canal, œsophagus, pylorus, rectum, skin.

The history of the case briefly is as follows : on November 20, 1915, I noticed that the pony was fading somewhat, his muscular movements slower, and the gait, particularly the near fore and off hind limbs, thrown forwards and outwards at the walk. His exercise was stopped owing to a two months' illness of the groom, the wintry weather and excessive damp. In February his coat became shaggy, and appetite capricious. Lameness of a rheumatoid-arthritic type. Temperature never more than 101·5. He was moved about half a mile from home for a few days, but refused food, had a sore throat, occasional cough, and generally unthrifty. No quidding of food, no salivation. Lay down a great deal. Testicles more or less swollen, orchitis being chiefly shown.

On March 15 I noticed a protrusion forwards and laterally of the superior maxillary bones, with tenderness on percussion. No nasal discharge. No tension on heart and respiratory apparatus to cause undue alarm.

He was ridden but twice to my knowledge, with ordinary weight of a child aged 7. His off hind leg from this time almost seemed as if it did not belong to him.

He was sound on April 22. Dead lame off fore 24th of the month. From this time he declined visibly. Recently he was clipped, and owing to presence of lice (a few being found, but many eggs) washed with potash (sulphurate) ; lastly, mercurial soap a few days before being destroyed.

On June 8 I found him recumbent ; I tried raising him, but his quarters sank and no weight could be placed on off hind limb. He sank on left side, and when destroyed was practically comatose.

Post-mortem examination revealed a staggering condition of things :

The liver, spleen, serous covering of colon affected with growths ; the colon and cæcum showing partly calcified globular bodies, shelly, and full of pus.

The pelvis and lumbar regions apart, with softening of last lumbar vertebræ, with spicules of bone, and an abscess which had burst on the spinal cord.

The near fore-limb. Head of humerus fell off the humerus itself on making the *post mortem*. His ribs elastic and could by slight

pressure be twisted as desired. The superior maxillary bones outwardly are worthy of note.

Mollities Ossium.

Definition.—An abnormal softening of bone, due to the presence of a largely preponderating quantity of animal matter, with a small amount of earthy material within the bone substance.

It is very difficult to say what causes operate in the production of this disease; probably the food and water have something to do with it. It is also very possible that a predisposition to the disease may be transmitted by a sire or dam to the progeny. Its presence is thought by some veterinarians to depend upon, or to be connected with melanosis.

(Smith) "There was a grey horse brought to the infirmary a few years ago that was suffering from this disease, and it was at first thought that the trouble was due to carious teeth, but afterwards the true condition was discovered. It was a case of *Mollities ossium.* The bones of the jaws were very soft and cartilaginous, and in this case, at least, I think it was due to a melanotic condition."

Symptoms.—There may be difficulty in mastication, which gradually becomes better marked as the disease progresses. The bones become more or less enlarged, and take on a soft and cartilaginous character, and there may also be a discharge, which is usually profuse and of a very offensive character.

Epithelioma.

Form, often friable.
Section: greyish-white when intersected with lines of fibrous tissue—turbid, liquid, crumpy, curdy.
Affects cutaneous or mucous surfaces.
Lower lip, anus, tongue prepuce.
Muscle—bone,* tendons.
Lymphatic glands, rare in internal organs (man).

Scirrhous, Fibrous or Chronic Cancer.

Characteristics.

(1) The large amount of stroma.
(2) Chronicity of growth.
(3) Rapid atrophy and progressive changes.
(4) Takes place in external parts generally.
(5) Cicatrization goes on, and tumour becomes somewhat indurated.
(6) Causes obstruction and obliteration of blood-vessels, hence assists in development.
(7) On section: greyish-white, juicy granules, mucus cells possessing free nuclei.
(8) Female breast: alimentary canal, œsophagus, pylorus, rectum, skin.

In man the acute infections (osteo-myelitis, and periostitis) caused by cocci, staphylococci *Pyogenes aureus* and *albus*, in the blood of the marrow, or periosteum, particularly in the femur, and tibia are found. These organisms are by many doubted as occurring in the horse, but there is grave doubt but that they play a great part in the progressive changes that are found in bone-diseases, especially the one under consideration. Progressive cachexia was a marked feature in the case of the "Shetland pony," and general anæmia pronounced. The pulse (submaxillary) varied from forty-five to seventy per minute. Temperature: highest 103·2°F.; lowest 99·°F.

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* These are the two forms which bear on and are to be considered in Joey's case, and are taken from Notes, 1883, and delivered Royal Veterinary College, by Professor W. Robertson, F.R.C.V.S., and Professor Brown, C.B.—Bd.

Uric acid predominated in the urine, distinctly acid in reaction, and at times the liver complications shown by an intense yellowness of conjunctivæ, nostrils, lips, and even palate were observed.

The large intestines, mesenteric artery, showed the presence of the blood-sucking helminth, *Strongylus armatus* (palisade worm). Several foreign bodies were found, and calculi in process of formation, resembling coal with iron intermingled. The lymphatic glands (calcified) hard in some few as a marble, and when broken, or cut into contained pus in majority of instances. Up to the summer of last year the pony seemed in fair health, beyond catarrh and laryngitis I do not know of any ailment affecting him hitherto. Orchitis was present for weeks on and off, which I attributed to a rheumatic tendency. On *post-mortem* examination I found the parasites in the spermatic cord and testes.

Dr. Cobbold, M.D., Lecturer on Helminthology, Royal Veterinary College, London, Lecture XVI, 28th November, 1883, when I was his monitor, stated: "*Strongylus armatus major* has been found in the testes."

During the efforts of the palisade worm to reach the intestines, they occupy several tissues of the body, producing much injury and consequent suffering. When arriving at sexual maturity they live in fæcal matter, in fact become dung feeders. They anchor themselves to the gut, in order to escape being ejected during the passage of the fæces, *via* intestinal canal, and per rectum finally.

A great deal of what is known of this notorious parasite, often overlooked or unsuspected, is due to Professor Rudolf Leuckart. The parasite in its active wanderings is the immediate cause of the formation of aneurysms, from whence by means of the complicated mouth armature they bore their way into the intestinal canal, where they at length acquire full sexual maturity and growth generally. The previous history of the pony was unknown to me, but I cannot help believing that the numerous parasites found, the gradual wasting of muscular structures, the ephemeral lameness, met with, and other clinical symptoms, that the same were due to the invasion of the system of the pony by the palisade worm, and brought about finally many of the changes in bone and other structures found on *post-mortem* examination. Section and staining of several parts of the bones and viscera by my friends revealed cancerous elements of an "epitheliomatous" nature. The case in my opinion is most rare and I should be pleased to know whether such have been encountered in the Shetland pony hitherto.

The causation is evidently attributable to some rather ill-defined impairment of general nutrition. It is most frequently found where debilitating influences, as defective dietary, bad sanitation, over-work, are in operation in either parent or progeny. That there are physical, chemical, and histological changes is undoubted, and were shown markedly in my case.

I consider the confinement, damp weather, absence of sunlight, sex and hereditary influences each bear their share in so marked a case of mollities ossium. I regret I was unable to trace any weakness in the strain from which this pony came, but brought south from native haunts, fauna, and in many cases living a life free yet fettered, would I think in a decade lower vitality, and with hidden

causes at work bring about dire results. Had my patient had regular exercise, or roamed about the heaths of the New Forest, fed on bracken, moss, ferns, and on a sandy soil, I venture to add that his life would certainly have not been prematurely cut off. When soil, food, and water upon which animals are reared, are changed for artificial surroundings, nature must be altered, a fact with which I think most of my readers will agree.

The part played by adventitious cell-growths of a malignant (cancerous) nature, the advent of actinomyces, the part too played by pus-forming organisms ought also to be duly considered in studying and combating what are very interesting cases, viz.—inflammatory, (2) non-inflammatory, (3) congenital malformations of the bones of the skeleton.

With this diversified article I close my book so to speak, feeling assured that it will receive at the reader's hands kindly consideration and due thought. As far as we know, many features of these diseases still lie hidden and neither the scientist, chemist, nor agriculturist can altogether satisfactorily explain them.

NOTES ON AN OUTBREAK OF POISONING AMONG HORSES.

By R. C. G. HANCOCK, B.Sc., M.R.C.V.S.

An outbreak of poisoning occurred recently in a Battery under my care, under the following circumstances:—

On May 22 and 23 the Battery marched eighteen and twenty miles respectively with the rest of its Brigade, arriving at its destination about 5 o'clock on the 23rd.

I was summoned on the morning of the 24th to see an A.S.C. horse (Case 1) of the Battery, and on arrival at 9.30 a.m. found it standing in a farmyard, head outstretched, in a urinating posture, some dyspnœa; respirations 60; pulse tumultuous; rate 70; temperature 102°; patchy perspiration. On moving, the gait, particularly of the hind limbs, was inco-ordinate, the condition being very reminiscent of a cow in the early stages of milk fever. Inquiry showed the horse had refused its morning water and feed. Liquid green fæces were noted to have been passed in small quantities at frequent intervals, and a small dejection occurred during my examination, after which nothing more was passed up to the time of death. During my examination the horse was obviously getting worse, and showing signs of falling, with incipient paralysis of the hind limbs.

He was led on to straw on the midden heap, where he soon fell down, and never rose again. Exhaustion from the march, laminitis, tetanus, azoturia, were all excluded one by one, and poisoning seemed the most likely diagnosis.

At 10·15 a dose of arecolin (2 gr.) was given, and beyond causing great pain, salivation, and increase of sweat, no defæcation occurred. Apparently, then, the paralysis of the hind limbs had been followed by that of the bowels, a fact corroborated by the absence of peristaltic sounds through the abdominal wall, and later further established by the fluid condition of the bowel contents found at *post-mortem*.

At 10.45 the pulse could not be taken owing to muscular twitching and the extreme rapidity of the beats. The heart-beats were audible several yards from the animal, and one hundred and twenty were counted in a minute. Temperature 105° F. Death occurred at midday. The *post-mortem* conducted during the afternoon showed the following:—

Liver, spleen, kidneys, and lungs normal. Stomach empty, the whole of the intestinal tract was free from inflammation. Careful search failed to find anything abnormal in the bowel contents, which were completely fluid, dark green in colour, and frothy.

The pericardium contained at least 6 oz. of yellow, semi-transparent fluid, but some escaped when the sac was opened, so probably half a pint was present.

Several horses were reported off-feed in one sub-section of the Battery at this time, but I was inclined to put this down at the time to the effects of the march, many of the horses being in poor condition.

Next morning, the 25th, ten horses in all were off-feed, one being down, having, like the previous case, developed paralysis of the hind quarters. This horse (Case 2) was not given arecolin, and no fæces were passed after he went down, although he, too, had diarrhœa at the outset. The subsequent symptoms and course were exactly the same as in Case 1. *Post-mortem* showed only frothy, dark green, completely fluid bowel contents, and 8 oz. of fluid in the pericardium. The stomach was full in this case.

Three more horses were reported off-feed during the afternoon.

The second death, together with a number of other horses off-feed, called for investigation, and I rode over to report the matter. On my return in the evening I found many of those off-feed showing staggering gait; some had slight heat in the feet.

Case 3 was prostrate, respiration and pulse accelerated;

temperature 103° F. I sent an orderly for a supply of arecolin, determined to give every horse a dose forthwith. The arecolin arrived by midnight, and every case received 2 gr. subcutaneously (Cases 3 to 15, thirteen horses). It acted throughout with great rapidity, every horse purging strongly within ten minutes.

Next morning, the 26th, at my first visit, every horse was grazing, and evidently on the road to recovery, except Case 3, which, although considerably better, still refused food.

Case 5 was also off-feed and dazed, but started feeding towards evening. The inco-ordinate gait had disappeared also, except in these two cases, and they were both staggering slightly behind, showing unwillingness to stir without a whip.

All were turned out into a grass field.

One now felt that the trouble was over, and I personally felt annoyance at being unable to find the cause despite two *post-mortems*. The watering places on the march, any unusual occurrences in the particular sub-section of the Battery—for, with the exception of four horses (Cases 8, 10, 11, and 15), all came from one sub-section—were ascertained with no result.

The food was examined carefully, poisoning by castor-oil beans being the most favoured theory.

On the morning of the 27th, the Battery was at driving drill, and about 8.30 a.m. I was summoned to a horse that had dropped dead in a team without premonitory signs, after marching some two miles from the wagon lines. The *post-mortem* was conducted on the spot and the following notes were made :—

Case 16.—Stomach full, mucous membrane showed no inflammation. Small intestine—from the pylorus for a distance of 15 ft. there was slight inflammation, evenly diffused throughout, contents of this portion were yellow and fluid. Three inches from the pylorus there was an ulcer, the size of a sixpence, undergoing cicatrization. Remainder of small bowel normal. Cæcum full, contents fluid. Large bowel full of oats, hay and grass, mucous membrane throughout this and remainder of bowel free from inflammation. Liver, spleen, kidneys, lungs, heart, larynx, all normal. Pericardium contained about 4 oz. of yellow semi-transparent fluid.

Case 17.—At 11 o'clock I was again summoned, this time to the wagon line ; just after watering another horse had fallen dead, without showing previous illness. *Post-mortem* made during the afternoon showed the following :—

Stomach—villous portion reddened and congested with small areas

of erosion. Small intestine normal. Cæcum at its tip markedly engorged and inflamed, no ulceration. First portion of large colon showed uniform inflammation. Other organs healthy, save that, as in all other cases, several ounces of pericardial fluid were recovered. A piece of stomach and cæcum and their respective contents were secured for examination and analysis.

At this time Case 3, which had lingered for two days, being *in extremis*, was shot. *Post-mortem* was as follows:—

Stomach—generalized inflammation of the villous portion, with seven distinct though shallow crateriform ulcers scattered over the surface. Bowel inflamed in patches throughout, notably the cæcum. Large colon showed corrugation, and slight induration. Contents of large intestine completely fluid. Remaining organs healthy, but pericardium contained over 8 oz. of fluid similar to the other cases. Portions of stomach and cæcum, together with their contents, were also sent for analysis with the material in Case 17.

No more cases occurred, and of the seventeen, five succumbed, seven were cured and are still with the Battery; the remaining five were evacuated to a convalescent depôt, being judged unfit for service for some time.

The report from the laboratory was as follows:—

"No metallic poisons were found, but the stomach contents labelled No. 91, (*i.e.*, Case 17, that died after watering) contained leaves and twigs of yew, and also a small amount of a substance giving the reactions of alkaloid. The amount of this substance was too minute for identification."

One must therefore assign the cause of the outbreak to yew.

The contents of the bowels of Cases 1, 2, and 3 were carefully examined by me, and I feel sure that any reasonable quantity of yew must have been detected during that examination.

The bowel contents of Cases 16 and 17 were not examined in detail by me.

That yew was not found in Case 16 at the laboratory may be explained by the fact that the case lasted over two days, thus giving time for digestive changes to render the yew unrecognizable. Presumably the yew must have been gathered during the march, at one of the hourly halts. No one in the Battery remembers halting by a yew hedge, and when returning along the same route, we failed to find yew where the Battery had halted on the previous journey. There was no yew accessible to the horses where they were picketed after their arrival on May 24.

I append a table giving a résumé of the cases.

In conclusion, I must express my great indebtedness to Sergeant W. E. Golden, A.V.C., who was of great assistance in the making of the *post-mortems;* who spent two days and nights in constant attendance on the cases, depriving himself of sleep until the less affected horses were out of danger.

SUMMARY OF CASES.

No. of case in order of occurrence	Sub-section of Battery	First noticed ill	Treatment	Remarks
1	A.S.C.	6 a.m., 24th	Arecolin, 2 gr., 10.15 a.m.	Died, 12 midday, 24th.
2	"B"	6 a.m., 25th	None	Died, 1 p.m., 25th.
3	"B"	Early 25th	Arecolin, 2 gr., midnight, 25th-26th	Died about midday, 27th.
4	"B"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Cured.
5	"B"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Evacuated to convalescent depôt.
6	"B"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Evacuated to convalescent depôt.
7	"B"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Evacuated to convalescent depôt.
8	Quartermaster's horse. "D"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Cured.
9	"B"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Cured.
10	V. Sergt. "A"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Cured.
11	Sergt.'s "D"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Cured.
12	"B"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Evacuated.
13	"B"	Afternoon of 25th	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Cured.
14	"B"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Evacuated.
15	Outrider. "C"	,, ,,	Arecolin, 2 gr., midnight, 25th-26th	Convalescent by 27th. Cured.
16	"D" (lent to "B" for parade)	Not noticed before death after march of two miles	*Nil*	Died on parade 8.30 a.m., 27th.
17	"B" (fellow horse to No. 16 for that parade)	Nothing noticed before death	*Nil*	Died after watering, 11 a.m., 27th. Yew found in stomach at *post-mortem*.

Selected Article.

CLINICAL LECTURE ON THE CASE OF A COW, A HAT-PIN, AND A BAILIFF.*

By Sir JOHN BLAND-SUTTON, F.R.C.S.
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(Reprinted by permission from the *Medical Press and Circular*, June 14, 1916.)

In order to make the points in this lecture clear, it will be necessary to describe the anatomical features of the stomach of a ruminant, for the patient was a cow.

The stomach of oxen is very complex (fig. 1). It contains four compartments. Of these, the first is a large receptacle called the rumen or paunch. The second is a smaller compartment, or recess, closely connected with the rumen and known as the reticulum; this, when cleaned, becomes honeycomb, the choicest kind of tripe. The reticulum receives the food from the gullet.

The third compartment, called the omasum, may be described as a dilatation of the canal between the reticulum and the abomasum; it is ovoid in shape and as big as a man's cranium. The walls of the omasum are thick and muscular, and its mucous membrane is arranged in folds, or leaves. Nearly a hundred folds hang from its dome; they stretch from the œsophageal opening to the entrance of the abomasum. The folds vary in depth (fig. 2), and produce an appearance like that of the flies of a theatre seen from the stage. These folds earned for the omasum the name of manyplies, and psalterium, from the likeness to a book. Butchers call it the bible.

Ellenberger (1881) investigated the structure and function of the omasum and described it as a triturating apparatus, or masticatory stomach. The leaves near the entrance are furnished with long warts or papillæ, resembling the teeth of a harrow; their hard, horny points are so arranged as to hinder the reflux of food to the reticulum. Towards the abomasum the papillæ are shorter, closer set, flattened, and resemble the low elevations of a rasp,

* Lecture delivered at the Middlesex Hospital.

or a file. The covering of the leaves is hard, almost horny, and very resistant to dilute solutions of acids, alkalis, and peptic juices. The walls of the omasum contract powerfully. Food between the leaves is thoroughly rasped by the papillæ before it enters the abomasum, the true digestive compartment.

After death the omasum is firmly contracted, but the walls of the other compartments of the stomach are relaxed. The stomach generally is under the control of the pneumogastric nerve, but Ellenberger found that stimulation of this nerve has no influence on the omasum. Nerve plexuses and multipolar nerve-cells are present in the walls of the omasum, but no ganglia.

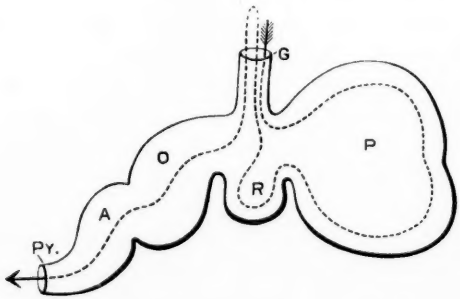


FIG. 1.—A diagram of the four compartments of the stomach of an ox. The dotted line shows the track of the food.

G. Gullet. P. Paunch or rumen. R. Reticulum. O. Omasum. A. Abomasum. Py. Pylorus.

The fourth compartment, known as the abomasum, is the true stomach; its glands secrete gastric juice. This acid secretion is called rennet. Dairymaids use the rennet of calves for curdling milk, the first step in cheesemaking.

It is useful to compare the stomach of a calf with that of an ox. In the new-born calf the fourth compartment, or abomasum, is larger than the rumen (fig. 3). A few months after birth, when the calf feeds on grass, the rumen enlarges rapidly, and in eighteen months the relative sizes of the various compartments are as follows: Rumen, 80 per cent.; reticulum, 5 per cent.; omasum and abomasum nearly equal each other—together 15 per cent. The tooth-like papillæ around the entrance of the omasum are very conspicuous in a calf a few weeks old.

When the cow feeds she encircles the grass with her long, prehensile rough tongue, and tears it off. Moistened with the saliva, the bolus of grass is conveyed by the gullet to the paunch. The fluid in the paunch consists of saliva, which is freely secreted, and water. In the paunch the food is macerated in an alkaline medium, assisted by the churning movements set up by the muscular tissue in its walls. Cows, and especially calves, lick and swallow hair from their hides; the churning of the contents in the paunch causes the hair to felt and form balls, often

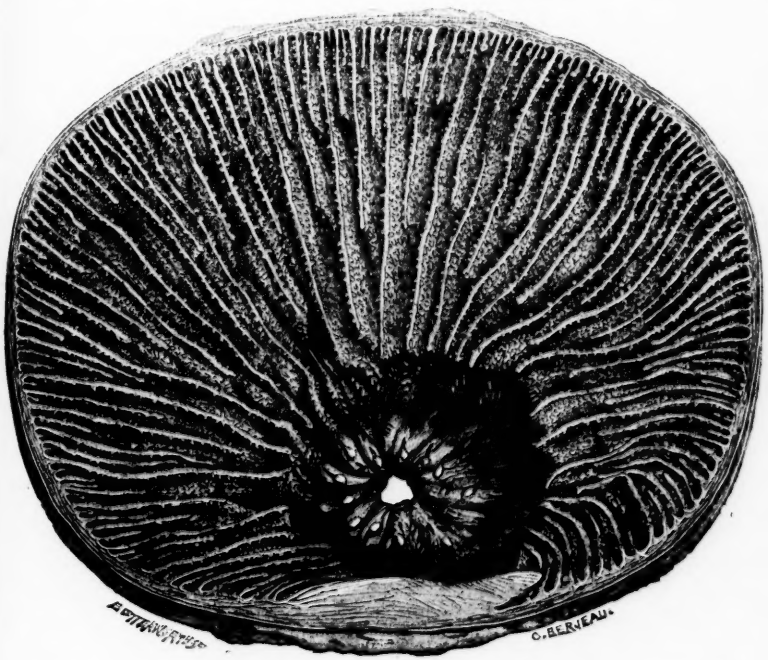


FIG. 2.—The Omasum (Psalterium or manyplies) of an ox in transverse section, showing the large papillæ at the orifice leading from the recticulum. (⅓ nat. size.)

called ægagropiles. The Hospital museum contains some good examples.

When feeding, cows often swallow odd things that may be lying in the grass, such as a frog, a purse, or a tobacco pouch; garters, bracelets, crosses and similar trinkets dropped by lovers;

darning needles, knitting needles, sewing needles; crochet hooks, button hooks, wire, forks, nails, blades of knives, scissors, and hymn books. The capacity of a cow's stomach is about 20 gallons.

When the cow has satisfied her appetite she lies down on one side, generally in the shade; then an apparently involuntary twitch of the flank sends a bolus of grass up the gullet, by reversed peristalsis, into the mouth. This bolus, probably moulded and ejected into the œsophagus by the reticulum, which is capable of energetic contraction, is ground fine by the molar teeth, mixed with saliva, and re-swallowed. This grinding act is known as rumination. The weight of the bolus is about 4 oz., and the time occupied in each act of rumination nearly a minute. A painstaking observer calculated that the cow spends about seven hours out of twenty-four in ruminating.

When the food returns to the stomach some falls into the rumen, but much of it goes into the reticulum and the omasum, thence onward to the abomasum, where it comes into contact with the gastric juice. The larger portion of the ruminant's stomach is like a pocket, non-digestive.

These facts prove that grass is not digested in the same way as a mutton-chop.

It must be obvious to anyone who clearly grasps the disposition of the various compartments of the stomach of an ox that elongated foreign bodies, such as wire, hat-pins, needles, and blades of knives, when swallowed, will have some difficulty in threading the maze offered by the omasum. An ordinary sewing-needle would easily enter. I have seen one stuck in a leaf of the omasum. Needles and wire often get into the reticulum, and the forcible contractions of its walls cause a pointed body to penetrate and find its way through the diaphragm into the pleura, the pericardium, the heart, or the lung. Sometimes such sharp things are forced into the belly. Such accidents often lead to infective changes that end in death.

Veterinary surgeons who have studied these conditions, realizing the frequency with which such dangerous foreign bodies are retained in the reticulum, have approached this compartment of the stomach through an incision in the flank, opened the reticulum and extracted the offending wire, or needle, as the case

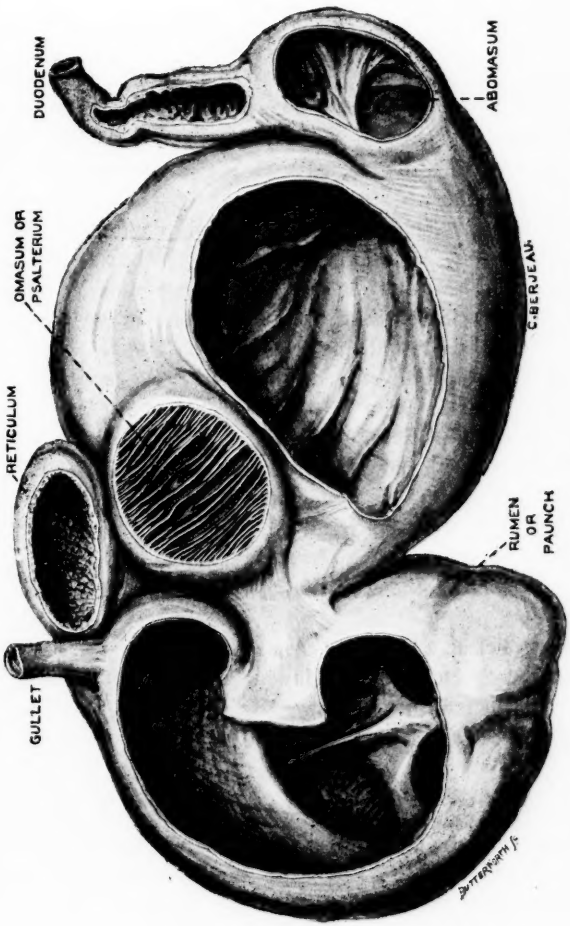


FIG. 3.—The stomach of a calf. The rumen is smaller than the abomasum. (¼ nat. size.)
(*Museum, Royal College of Surgeons of England.*)

may be. It is gratifying to know that in a fair number of cases such operations have been successful, not merely in finding and removing the foreign body, but in saving the life of an animal.

The Hat-pin.

A charming lady, on her thirtieth birthday, received from her devoted husband a hat-pin surmounted by pearl. Later in the day she visited the mansion of her parents, and as haymaking was in progress, full of glee, all took tea in the hayfield. The lady took off her hat, placed it on the grass, and stuck the pin in the ground near the hat. The wind was playful and quietly blew the hat about. When the lady picked up her hat she could not find the pin. Mother, father, sister, servants, haymakers, male and female, joined in the search. They raked the grass and racked their brains until darkness put an end to the search. The birthday, in spite of the brightness of the day, ended in gloom.

The scene shifts to Christmas. The lady who lost her hat-pin spent the holiday with her parents. On the morning of Boxing Day the bailiff reported that the prize cow was ill and the vet. was puzzled to account for the symptoms. Two days later the cow died, and at the *post-mortem* examination the hat-pin was found; it had pierced the wall of the reticulum and entered the pericardium.

The story is clear. The cow, when eating grass, had accidentally swallowed the hat-pin, and in due course it penetrated the stomach and inflicted a fatal injury.

The Bailiff.

The bailiff, incidentally mentioned in this case, was a peculiar man, and attracted my attention two years before the cow episode. The mansion of my friend had large capacious chimneys which served as excellent nesting-places for some jackdaws. There was a disadvantage in this, for when winter came the nests interfered with the escape of smoke, and it became necessary to send men on the roof to remove the nests. To avoid this the bailiff had the chimney-tops covered with wire netting. The following spring the enterprising jackdaws, finding the chimneys closed against them, flew to the stables and turned the pigeons out of the dove-

cotes, and there they built nests, laid eggs, and successfully hatched them.

About the time of the cow's death the bailiff's conduct excited comment. When he sent flowers to the mansion they would differ in variety, in colour, or in kind. For example, he would send roses, geraniums, and pansies; anemones, hyacinths and daffodils; tulips red, white and blue. In the same way he would send vegetables and fruit for the table, always three kinds. The animals were sent into the fields in groups of three, or three kinds: cattle, sheep, and pigs; a cow, calf, and pony; an ox, an ass, and a horse. This eccentricity excited comment and amusement. He would send three men to work in a field, or dig the garden; or a man, woman, and a boy. Gradually his master noticed that the fruit trees were being pulled up, so that those left stood in groups of three. It then became a serious matter. Finally, he began to fell the timber so that three trees stood together. In one field the trees would be an alder, ash, and elm; in another, oak, ash, and thorn. In one meadow it was fortunate that he spared an interesting thorn that marked the course of an old road along which Queen Elizabeth rode when she went to the revels at Kenilworth. I have seen that thorn. The cows could ruminate in the shade of the oak, the pony could scratch his rump against the ash, and sheep could leave their wool on the thorn. When the bailiff began to cut down timber trees matters became serious—his sanity was in doubt; then followed a consultation. He was found to be a religious monomaniac. In vulgar language, he was cracked on the Trinity. The poor fellow was incarcerated in a lunatic asylum and died within three months.

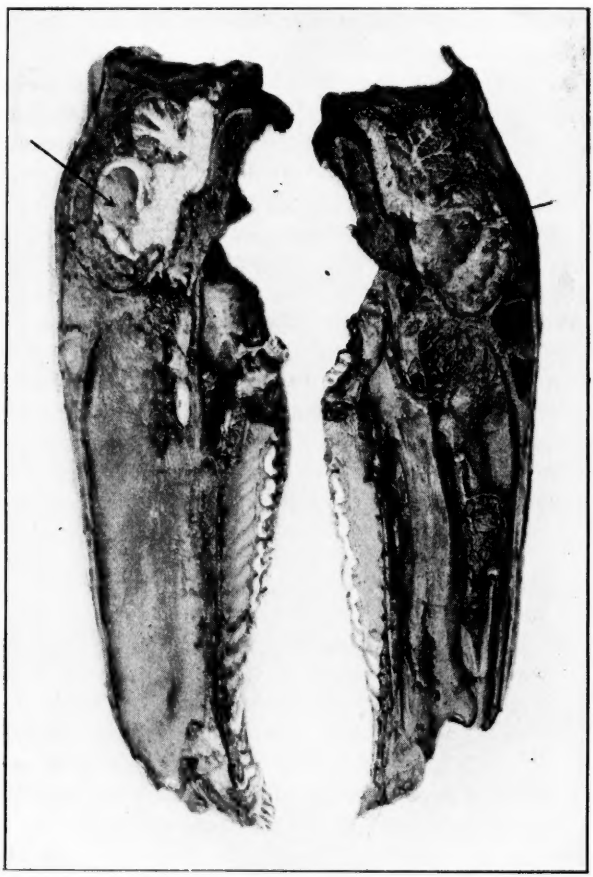
Clinical Cases.

BILATERAL PSAMMOMA IN THE HORSE.

By F. H. STAINTON, M.R.C.V.S.
Kensington.

Subject.—Aged bay gelding.

History.—Had worked six days and sometimes seven days a week uninterruptedly for seven years and *never showed a symptom* until the morning in question.



Bilateral Psammoma.

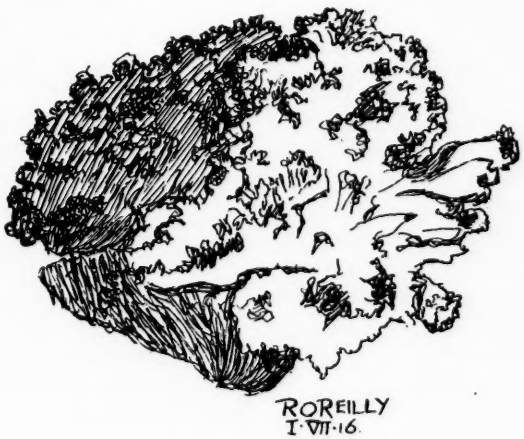
Symptoms.—After coming in from work the animal suddenly started shaking its head violently, climbing into the manger, and behaving much as a horse with "staggers."

When called in I was informed that the horse had gone mad, and I found the animal lying on the ground. Pulse slow and full, and breathing stertorous. Pupil very dilated and reflex absent. Temperature 105° F. Condition alternating between coma and violent struggling with muscular contraction, during which considerable injuries were self-inflicted. Seeing that treatment was useless I destroyed the animal, and a *post-mortem* examination revealed bilateral psammoma as seen at A and B in photograph.

PAPILLOMA IN THE BLADDER OF A MARE.

By Captain A. S. LEESE, A.V.C.

A brown (rider) mare, trooper, about ten years old, was evacuated to hospital from the Front labelled "For removal of calculus." She showed great irritation of the bladder by frequent severe straining, every effort being accompanied by ejection of a few drops of normal-looking urine.



A portion of the papillomatous growth.

On examination of bladder through the wall of the vagina it felt like a solid organ. By passing a finger down the urethra I plainly felt a firm growth inside the bladder.

Under chloroform I dilated the urethral opening until three fingers were in the bladder, and this revealed that the tumour was of great size and that its attachment was out of reach. I then cut the sphincter muscle in an upward direction in the median line with a bistoury caché and got my whole hand into the bladder, hoping to find a pedicle which could be got at with an écraseur. I found, however, that the tumour had too broad a base. I removed a good deal of the tumour with my fingers and found it to be a papilloma weighing about ¾ lb. The mare was destroyed as she was in considerable pain and it was impossible to remove it all. A post-mortem revealed great thickening of the wall of the bladder and that the growth had extended almost all over the interior.

TWO FOAL CASES.

By G. MAYALL, M.R.C.V.S.

Case 1.—Paralysis of the Bladder in a Filly Foal.

Called to a filly foal on May 5 that was unable to hold her water. Found a fairly well grown subject about a month old, with the lower two-thirds of its tail and its thighs from the vulva to the hocks wet through. Left a bottle of the following medicine: sodæ brom. ½ oz., liquid ext. belladonna 2 drachms, glycerine 1 oz., water to 6 oz. A tablespoonful in a wineglassful of water, three times daily. On May 16 when I called, the foal was a little better, but the dribbling of urine had not stopped. Passed the catheter and injected the bladder with a very dilute solution of cresol and left some more medicine as above. On May 18, the condition of the foal was much the same, thighs and tail still wet, and urine passed involuntarily, especially when the foal turned quickly in the box. Passed the catheter and drew away a small quantity of high-coloured urine. Afterwards cauterized the urethral exit with silver nitrate in the stick. On May 23, foal much better; passed catheter and drew away about a pint of urine, lightly cauterized urethral exit and left a bottle of medicine: soda bicarb. 1 oz., fluid ext. belladonna 1 drachm, water to 10 oz. Two tablespoonfuls night and morning in a wineglassful of water. From this time onwards the foal made a recovery and when I docked her a week ago she was quite dry behind and had put on flesh.

It was while reading Whitla's "Dictionary of Treatment" (human subject) that I came across the cauterization of the urethral exit as a treatment for incontinence of the urine in girls. Whitla writes that incontinence of urine is frequent "in the girls and neglected children sent into industrial or charity schools." In this case I attribute recovery to the catheterization and the use of the silver nitrate.

Case 2.—Diarrhœa in a Filly Foal.

Called to a filly foal about two months old, suffering from diarrhœa. Prescribed chlorodyne ½ oz., bismuth and salol mixture 2 oz., water to 8 oz. Two tablespoonfuls in a wineglassful of water, three times daily. The mare was going out to work every day and the foal suckled on her return. Advised resting the mare for a day or two, and on my next visit, June 5, took some more medicine as above for foal, which I found slightly improved, and also left six powders for mare, containing 6 drachms of soda bicarb. in each powder. I visited the foal on three occasions afterwards, and at one time after the mare had been at work there was some recurrence of the diarrhœa, so I left instructions that some of the milk should be drawn away from the mare before the foal was allowed to suck, that when she was overheated she should be allowed to cool before the foal was put with her, and also, as far as possible, the times at which the foal sucked should be regular. Many small men are obliged to work their mares while they have foals at foot, but this fact does not leave the dam's milk in the best condition for the foal. This foal eventually made a good recovery.

MY FIRST ACTUAL EXPERIENCE WITH FISTULA OF THE EAR.

By J. E. STRAYER.
Hartington, Neb.

On Sunday, December 18, I received a telephone call to come thirteen miles to see a bad case of distemper (strangles). The wind was blowing a gale, such as we have in Nebraska occasionally; this interfered materially with the telephone service. The meagre message informed me that "A colt has had the distemper two weeks and has a running sore on the ear. Come at once." On arrival I found a two-year-old colt, draught type, with a fistula half-way up the ear,

discharging a thick, dirty whitish substance, somewhat resembling the white of an egg. Immediately below the fistula was an enlargement filled with the grumous substance mentioned above. Pressure on this enlargement caused a discharge at the fistula; and just below this enlargement a solid object could be felt, which projected about $\frac{3}{4}$ in. above the parietal bone. Its outline could be distinctly felt and I had no hesitancy in saying it was a tooth formation.

The parties claimed the colt had this discharge about two weeks, but further inquiry brought out the fact that they had owned the colt two weeks and did not know how long the condition had existed. The original owner was consulted at a later date, which brought out the fact that the colt had an enlargement there when he was two weeks old.

The parties were advised to bring the colt to town, where he could be placed on the operating table. This they did the next day. The field of operation was shaved, disinfected and cocainized as deeply as possible. A horizontal incision was made, the tissues were removed, and this revealed the odontome, which was surrounded by a substance macroscopically resembling alveolar periosteum, which adhered very tenaciously to the tooth and parietal bone. The forceps were applied with hopes of removing the periosteum and tooth *in toto*, but the capsule crumbled under the pressure of the forceps. Several futile attempts at extraction were made and it seemed that the parietal bone was very likely to fracture, but after a long, continued rotary movement I was able to extract the tooth, which was $1\frac{1}{2}$ in. long and $\frac{9}{16}$ in. in diameter at the crown, and gradually tapering to the fangs, which were four in number and about the size of straws. There was just enough space between the fangs so their outlines could be distinctly seen.

The molar had a roughened or carious appearance, with a groove running from one fang around the tooth and communicated with the fistula at one point of the crown. This point was as white as it is possible for ivory to be, which proved conclusively that the object was intended for a pre-molar. The outlines resembled the third upper pre-molar. The crown was directed upward, fangs downward and inclined inward toward the petrosal bone; 40 gr. of bichloride of mercury were placed in the cavity and held in position by some cotton. The colt was sent home the ninth day apparently not feeling worse as a result of the operation and treatment.—*Journal of the American Veterinary Medical Association.*

LUXATION OF THE FLEXOR PEDIS PERFORATUS TENDON IN THE DOG.

By G. MAYALL, M.R.C.V.S.

Called to an Irish terrier dog lame on June 24. Found patient carrying the near hind leg, and a mark as of recent injury just above the point of the hock and the hock capped. Left some opening medicine, and had the leg rubbed twice daily with lin. saponis co. and the dog strictly kept up. On 27th subject a little better, and it was now while examining the leg that I found the tendon slipped off the point of the hock to the outside with a cluck, and that the dog walked a few steps all right and then carried the leg again. The point of the hock was still slightly swelled, and after being rubbed two or three times a day for a week with lin. pot. iodidi cum saponis and some aspirin tabloids internally the dog was considerably better, but still carried the leg at times. He was a rough dog, constantly jumping and chasing after cats and other dogs, and so not a very good patient.

About a year ago I had a fox terrier patient with luxation of the patella that made a good recovery after about a month, and after painting the joint daily with tincture of iodine. These luxations in the dog are very troublesome, and this is the first case I have met with of luxation of the perforatus tendon in any animal, so thought it worth recording.

Translations.

A CASE OF FATAL HÆMOPTYSIS IN A COW WITH THROMBOSIS OF THE PULMONARY ARTERY.

By Dr. E. WYSSMANN,
Neuenegg.

On the evening of June 3, I was called to attend immediately a 5-year-old Simmental cow which discharged large quantities of frothy blood from the mouth and nose a few minutes after drinking and showed great anxiety and difficulty in breathing. When I arrived at the place ten minutes afterwards the cow was already dead. After the death the owner had stuck the cow in the usual way but little blood had flowed away. The mangers and floor of the stall and the surroundings were covered with bloody froth.

In February two years previously, the cow had been attended by me for foreign body indigestion, and in fact according to my notes she was treated for severe febrile gastritis, temperature 103° F. to 105° F., and right-sided pleurisy with greatly increased superficial respiration 40 per minute. After application of a sharp counter-irritant the condition improved slowly, and as a result apparently complete recovery occurred. In the autumn of the following year the cow calved normally, and gave from 1¾ to 2 gallons of milk each milking time. During the spring and summer the quantity of milk declined to 12 pints at a milking time, and now and again suddenly sank to 7 or 8 pints. Sometimes the cow showed off and on a weak cough and after drinking laboured breathing.

Post-mortem showed the lungs increased in size threefold, hard to the feel and with very numerous subpleural hæmorrhages, having a spotty appearance. The trachea, bronchi and bronchioles exhibited numerous long rods of clear red, coagulated blood. The smaller arterial branches in the lungs were quite blocked with blood in places. The left lung containing numerous nut-sized purulent masses with partly firm, yellowish, and partly fluid purulent contents (emboli). In the right lung there were small infarctions. There was a necrotic, stinking focus in this lung and in the pulmonary artery a thrombus 15 cm. long and 7 cm. at the base. This thrombus in the direction of the heart possessed a mushroom-like, hollowed out, flat appearance and a very fine stratification could be recognized in it. On the ventral arterial wall it was firmly adherent, laterally

and dorsally it confined an evil-smelling, grey purulent mass which was situated between it and the arterial wall.

The bronchial glands were swollen and contained small foci of pus. There was a large quantity of coagulated blood in the left chamber of the heart. The right chamber was empty.

Wyssmann considers that the origin of the complaint was traumatic gastritis and pleurisy, and then a secondary thrombosis in the pulmonary artery, leading later on to numerous embolic formations. These latter declared themselves clinically by the often noticed decline of milk supply. The thrombus took two and a third years to develop and bring about the fatal hæmorrhage, which shows that it grew but slowly. The cause of the hæmorrhage was the enormous stoppage in the right lung combined with profuse throwing out of blood into the bronchioles, causing the left branch of the artery to become impervious. Perhaps, also, it was the result of fresh emboli and acute heart weakness therefrom.

Friedberger and Frohner attribute hæmorrhage from the lungs in cattle to tuberculosis, disease of the arteries, emboli, and foreign bodies; Hutyra and Marek to tuberculosis and new formations. Rossignol saw a fatal hæmorrhage from ulceration of a tumour in the lungs. Vicari saw a case which was a second attack where over three quarters of the lungs were involved. The place from which the hæmorrhage came could not, however, be discovered.—*Swiss Journal of Veterinary Medicine.*

ATRESIA OF THE LACTEAL DUCT.

By Dr. STEFFEN.

Atresia of the lacteal duct is commonly termed teat stricture The occlusion is usually a partial one, rarely complete. The seat of stricture or closure may be at the teat orifice, along the course of the duct, or at the proximal end of the duct where it emerges from the sinus lactiferus.

When the stricture is located at the apex, or near the distal end, the milk enters the teat quite readily, but difficulty is experienced in squeezing it out; the stream is very thin, or it squirts in several directions.

When the stricture is farther up, or at the proximal end, difficulty is experienced in getting the milk to fill up the teat; after the teat is filled it is ejected easily.

In rare cases, which may occur in heifers, there is a true atresia or closure of the duct orifice in the end of the teat. There is only a slight pit or depression in the epithelium, at the point where the duct normally emerges, but the epithelium is not perforated.

With two exceptions, strictures of the teat have an unfavourable prognosis. One exception is that form occurring at the very extremity or external orifice of the duct; the other exception is that form appearing as a true atresia in heifers.

In the various forms involving the duct higher up and at its proximal end, the treatment is not very well understood nor accompanied by satisfactory results. Of course, there are cases of the latter variety occasionally which have a satisfactory termination, but they are rare. The treatment which is in vogue for these conditions (and to all appearances as good as we can do) is fraught with danger from the standpoint of sequelæ, of which mastitis is the most important.

The various operations which have been recommended and quite thoroughly tried out, as well as the different types of bistouries and dilators, have not proven of much value in general practice. It is almost an absolute necessity to have hospital facilities for the proper and conscientious performance of the measures required to correct a high stricture in the lacteal duct. It is decidedly humiliating for the veterinarian in general practice to see a severe mastitis succeeding manipulations for the correction of a condition which, to the farmer, seems a trivial matter.

In our practice we refuse to treat a high stricture of the teat until we have clearly explained to the owner what the chances are. We make it clear to him that rarely is any form of interference attended with results which are so satisfactory as to warrant the attempt; that in many instances a severe mastitis, which will probably destroy the quarter, will supervene. If, after this warning, he is still willing to submit the cow to treatment, we attempt dilation, and in some cases incision of the stricture. We have not enough faith in any procedure for the correction of this condition with which we are familiar to give it space here.

In those cases which involve the apex or distal end of the duct we can obtain good results with fair regularity. We have met two forms of the condition in this part of the duct. One

form is a true stricture or narrowing of the lumen of the duct, probably as the result of infectious or other inflammatory processes. In this form we are able to obtain good results from dilation. It is not very important how this dilation is accomplished, so that it is done aseptically and bloodlessly. We use an ordinary teat dilator, repeating the stretching every few days. The best method is to dilate and allow the duct to collapse repeatedly, from six to ten times at each treatment. Insert the dilator, expand it as far as indicated, and then hold it there for one or two minutes; take it out, wait a couple of minutes, and repeat. Do this from six to eight times at each sitting, and in a few days again. Three to five of these courses of stretching accomplish the desired result.

The other form which we can also treat successfully is a narrowing of the orifice of the duct from collections of evaporated mucus or similar concretions. These collect just inside the edge of the orifice, and are of the consistency of dry putty. When an instrument is passed over them, a faint, scraping sound can be detected.

They are to be very gently removed with a small eye curette or an ear spoon, and the parts are then to be given an application of glycerine by means of a cotton swab.

Cases of true atresia of the distal end of the lacteal duct which occur occasionally in heifers can also be treated with very satisfactory results. The duct is perfect except for the appearance of the orifice through the skin.

When the teat has been thoroughly cleansed, the pointed stilet of an exploring trocar is used to puncture the skin. This puncture is made exactly in the centre of the pit, which is always present, and just deep enough so that the point penetrates the skin. With slight pressure, but not enough to cause the stilet to enter deeper, it is turned from right to left, and from left to right a few times. It is then withdrawn and laid aside. A small sharp curette is now used to enlarge the opening until it is of such size that a milk tube will readily pass through it into the duct. A little pressure may at first be necessary to enter the point of the tube in the duct.

A small strip of gauze saturated with glycerine is then forced a short distance into the duct and allowed to remain, with an inch or so protruding. This strip of gauze is removed after twenty-four hours and the heifer milked regularly.

The restraint for this operation is always to be in the recumbent position. If the operation is deftly performed it is practically bloodless.

In heifers this operation should be performed just before or immediately after calving.

We would call the veterinarian's attention again, before closing the discussion, to what has been said about high strictures of the teat. Our experience is that the veterinarian can serve his client best in most of those cases by advising that the condition be left alone, letting that particular quarter go dry.—*American Journ. of Vet. Med.*

FODDER POISONING.

By Veterinary-Surgeon J. KUNZ.
Grosswangen (Lucerne).

Called to eight cows, during a period of a few weeks, suffering from fodder poisoning. Five of the subjects died very quickly, showing violent convulsions and symptoms of brain irritability. Collective *post-mortem* showed gastritis and inflammation of the spinal marrow as a result of intoxication as a cause of the disease. Pica or licking disease was prevalent in the whole herd. The grounds for this was the feeding of large quantities of clover, among which there was a fair amount of clover fungi, *Polythrincium trifolii* (*Splæria trifolii*, Pers), discernible. Dammann, in his "Text-book of Hygiene," records cases of disease due to clover fungi quite similar to those occurring here. There was sudden onset of staggering or rocking of the hindquarters and paralysis of the loins. *Post-mortem* showed "hæmorrhagic gastro-enteritis, sub-endocardial ecchymoses, and hyperæmia of the coverings of the spinal cord."

Specimens of the clover were now sent to the Botanical Institute of the University of Berne, and the presence of clover fungi was confirmed. No detailed investigations were made on the toxicological peculiarities and effects of the fungi, and the Institute merely gave warning "of the presence of the named parasites on the clover leaves without drawing the further conclusion that these fungi were the cause of the cattle being poisoned." From the facts, however, and the comparison with

the symptoms of intoxication described by Dammann, the injurious effect of these fungi cannot be doubted. An interesting fact proving a connection between licking disease and food intoxication seems to me to be proved by the following: On the neighbouring holding *Polythrincium trifolii* occurs in similar abundance, but there was no licking disease, and among these pica-free cattle there were no intoxications.

Some authors, like Dr. Leichti, of the Agricultural Chemical Experimental School at Liebefeld, believe that severe cases of illness and sudden deaths as a result of licking disease are due to infection through the drinking water. Whether the noxious properties of the water have been proved I do not know.

Zschokke describes an infectious paresis due to poisoning by crushed maize, but in several other cases infection through the drinking water was proved, and the cause of the illness was ascribed to a cocco bacterium of the *Bacterium coli commune* family.

Similar symptoms of disease are described in the text-books as a result of pica. A malady affecting the central nervous system arises. Lehmke defines licking disease in cattle as "a chronic disease, declaring itself by disturbance of nutrition brought about by lack of phosphorus, and commencing from primary disease of the central organ and nerves on whose integrity nourishment depends."

In the older text-books a failure of the salts of nutrition, especially sodium salt, is stated to cause pica. Catarrh of the stomach and intestine accompanies pica as a result. A lack of sodium salts in the blood or over-acidity of the stomach may bring about an abnormal irritability of the gastric and intestinal mucosa. When this is present to a high degree we get ulceration of the stomach, and in man the analogous peptic ulceration of the stomach. Gastritis and gastro-intestinal catarrh also occur. All these lesions of the mucosa favour in a high degree the resorption of toxic substances. In the presence of licking disease and its results a predisposing moment comes about in quite a marked way for all kinds of intoxications. The best prophylaxes against fodder poisoning is an energetic dealing with and avoiding of pica. Where this is carried out cases of fodder poisoning are reduced to a minimum. Dry food and corn food should be added to the green food. Calcium phosphate,

sodium bicarbonate, and aromatic bitters are indicated. Calcium phosphate may be given repeatedly in very large doses (500 to 700 grm.) until all symptoms of pica have disappeared. After long-continued wet and rain, sodden green food licking disease is most frequent. G. M.

CAPTAIN J. J. DUNLOP, A.V.C.

THE brave deed for which Captain Dunlop was awarded the Military Cross happened whilst he was attached to an Artillery Brigade at the time he was in veterinary attendance at the waggon lines of a battery in a village behind the trenches. The road between this village and the next was under direct observation from the German side and was subjected periodically to shelling. The French, indeed, from whom the British had recently taken over the ground, had stopped all traffic by daylight but it was used by the British. On the day in question the road, at a point about 400 yards from the village, was shelled at right range and two men were seen to be hit. Accompanied by an Artillery sergeant, Captain Dunlop ran to the spot, but before getting there a very plucky soldier, riding a motor-bicycle and sidecar, which was passing, stopped and lifted one of the wounded men and safely brought him in. The other man was very badly wounded all over, especially his legs, which were smashed. Captain Dunlop improvised splints and fixed him up as well as possible. Whilst attending him they were accurately shelled, one shell landing only three yards off, but fortunately bursting away. They managed to carry the wounded soldier down to the village, having to take cover several times from shells.

Shortly afterwards a small farm-house in which were billeted some engineers and transport was heavily shelled. Captain Dunlop was informed that casualties had occurred, so went in and brought out one wounded and one dead sapper. He then started off for home, but was overtaken and told that some transport mules were under fire and that some had been hit. He went back and saw them transferred to another place, dressing some and shooting two.

XUM

Reviews.

Veterinary Handbook and Visiting List.—By Thomas B. Rogers, D.V.S., Lecturer on Contagious Diseases of Animals in the Medical Department of Temple University, Philadelphia, Pa. Price 6s. net. Published by J. P. Lippincott Company, Philadelphia and London.

This little book of 119 pages is designed to help the veterinarian in prescribing and dispensing. It is after the same style as our Banham, but not so comprehensive and complete. The importance of bacterial therapy, chiefly useful for diagnostic purposes, is accentuated in an opening chapter of eight pages. This is well written, concise, and valuable. A knowledge of the incubative period of contagious and infectious diseases is important, and a list of the hatching time of some of the common ailments is given. Prescription writing is always a bit of a bugbear, because only a very few men gain that knowledge of Latin that is any use to them in after life. Consummate knowledge of a dead language is not as a rule exhibited. However, this handbook will enable prescribers not to make palpable "bloomers," or peculiar innovations, especially if they do not write *quantum sufficiat* as they are advised. The dose table of drugs commonly used is not a very complete one, and we see no reference to the external uses of many of them, and note some striking omissions. The value of hypodermic injections and their uses is not stated even as regards physostigmine, atropine, arecolin, or digitalin. Really subcutaneous injections need more consideration than they get from all writers on therapeutics. A duration of pregnancy table is given in which that of the sow is put at 115 to 120 days. In 40 per cent. of cases the period may be 125 days, at any rate in this country. Complete tables are compiled of the relative value of apothecaries' weight and measure and that of the metric system. There is a whole series of blank pages in the book intended in one case to make notes on the action of drugs and in the other to record visits.

The Harrison Anti-Narcotic Law does not affect us here, but it will be explanatory to state from the chapter on the subject that a very strict record has to be kept by veterinarians of the purchase, use, dispensing, and prescribing of any preparation of opium or coca leaves. The veterinary surgeon who deals in these narcotics must be registered by the authority. The supervision is carried out by the Collector of Internal Revenue, and the Harrison Act is a Revenue Law.

The book is a useful one, and has its good points. It is well worth perusal by those specially interested in drugs and their prescribing, and no doubt some useful wrinkles may be gained from it.

G.M.

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Tropical Veterinary Bulletin. Issued under the direction of the Honorary Managing Committee of the Tropical Diseases Bureau, Imperial Institute, S.W. Sold by Baillière, Tindall and Cox, 8, Henrietta Street, Covent Garden, W.C. Editor, A. L. Sheather, B.Sc., M.R.C.V.S. Price 3s. net.

Like all journals at present this periodical shows symptoms of curtailment, and as a sign of the times we notice only two annotations from German sources whereas formerly they used to be numerous. There is a moral attached to this statement which is pleasant, and presages the decline of the Hun influence on medical science.

The three references most interesting to us in this country are those on "The Virulence of the Blood of Infected Animals," "Pneumocystis carinii in Mice in England," and "Nambi-uvu, a Disease of Dogs in Brazil."

Regarding the first-mentioned subject, it is stated that the blood of animals infected with foot-and-mouth disease is virulent during the whole of the febrile period, and its virulence is greater than that of the liquid obtained from the lesions. Both serum and corpuscles inoculated separately are capable of producing the disease, and they appear to be of equal virulence. The second reference mentioned refers to protozoal parasites found in the lungs of a wild mouse killed at Cambridge. The author thinks that the encysted parasites leave the host by way of the mucus in the oral or nasal secretions, and passage may take place from host to host by contamination or casually. The dog disease in Brazil is chiefly interesting comparatively to canine pathologists and therapeutists. It is characterized in the acute attack by dullness, pronounced jaundice, and progressive anæmia, which lead to a fatal termination in from three to ten days. A subacute form is denoted by hæmorrhage from the skin of the ears, back, or other parts of the body. Chronic cases mostly recover.

This is the second number of Vol. IV of the *Bulletin*, and those interested in tropical medicine cannot afford to do without it. It flits from subject to subject of foreign land ailments. The references are models of conciseness and lucidity. A perusal of its pages shows what a vast field there is in the world for research, and what a horde of diseases inimical to animal life and welfare there is to be checked and subjugated.

We are glad to see that France and Italy are rising to their opportunities, and doing good work in their domains.

The Annual Reports of the Accra Laboratory for 1914 and of the Medical Research Institute, Nigeria, receive due consideration in the *Bulletin*. G.M.

ARMY VETERINARY SERVICE.

REGULAR FORCES. ARMY VETERINARY CORPS.

Major F. S. H. Baldrey, retired pay, to be temporary Lieutenant-Colonel while holding appointment of Assistant Director of Veterinary Service.

Appointment to temporary rank of Major of Captain R. W. Mellard is antedated to June 8, 1915.

Captain (C. Mil) to be temporary Captain: A. R. Cameron, Canadian A.V.C.

Temporary Captain L. L. Manchester relinquishes commission on termination of engagement.

Lieutenant to be temporary Captain: C. A. Stevenson, Canadian A.V.C.

To be Lieutenants: G. Frayne, J. J. Bourke.

Lieutenants to be temporary Captains: C. W. Ruttan, M. J. Preston, A. Savage.

Temporary Lieutenants to be temporary Captains: R. L. Lewis, G. S. Arkcoll, W. Anderson, T. G. Heatley, F. W. Cosgrove, J. McK.Brown, C. J. Clibborn, J. H. Taylor, F.R.C.V.S., E. Evans, J. MacFarlane, D. Starkey, F. D. Smith, M. J. Reidy, S. H. Kesten, E. J. Burndred, A. W. Brasnett, S. G. Bright, E. B. Reynolds, B. A. Brown, R. T. Skelton, W. P. Ruthven.

Temporary Lieutenant W. A. Dellagana relinquishes his commission on termination of his engagement.

Temporary Lieutenant L. H. Leach relinquishes his commission on termination of engagement; temporary Lieutenant H. Tweedley relinquishes commission; temporary Lieutenant R. Stokoe relinquishes his commission on termination of engagement.

To be temporary Lieutenants: Farrier-Serjeant W. M. Parsons, 115053 Canadian A.V.C., L. J. Kelly, A. T. Crowther, T. J. Kenny, J. McAfee, W. T. Edwards, T. Dalling, W. R. Kennedy, E. G. Robertson.

Lieutenants to be temporary Captains: Captain J. L. Rich, Lieutenant R. M. Lee, Lieutenant W. A. Robertson, Lieutenant W. E. S. West, all of Canadian A.V.C.

To be temporary Quartermaster with rank of Lieutenant: T. McHugh.

TERRITORIAL FORCES. ARMY VETERINARY CORPS.

Major (temporary Lieutenant-Colonel) W. R. Walker (Major Res. of O.) relinquished his temporary rank on alteration in posting.

The date of the following Lieutenants to be Captains to be August 5, with precedence next above Captain J. H. Thomson, instead of as previously notified: C. A. A. Ewin, G. McIntyre, W. N. Jürgensen, H. McVean, J. Hill, H. E. Powell, J. P. Heyes.

Lieutenants to be Captains: W. R. Williams, J. M. Lund, G. L. Harber.

Temporary Lieutenants to temporary Captains: R. W. Paley, R. Bickerton.

To be Lieutenants: J. Mullany, W. M. Jackson.

CANADIAN A.V.C.

Captain to be temporary Major: E. Edgett, A.D.V.S.

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ARMY VETERINARY SERVICE.

Extracts from *London Gazette*,

WAR OFFICE, WHITEHALL.

The following despatch has been received by the Secretary of State for War from Lieutenant-General the Hon. J. C. Smuts, Commander-in-Chief, East African Force:—

General Headquarters, East Africa,
May 8, 1916.

My Lord,—In accordance with the last paragraph of my despatch dated April 30, 1916, I have the honour to bring to notice the names of those whom I recommend for gallant and distinguished service in the field.

Staff.—Temporary Lieutenant-Colonel R. J. Stordy, E. African V.C.; Major W. Jowett, S. African V.C.

Special Reserve.—Lieutenant (temporary Captain) W. W. Henderson, E. African V.C.

WAR OFFICE, WHITEHALL, July 12.

Mentioned in Despatches.

The following are mentioned for distinguished and gallant services rendered during the period of General Sir Charles Munro's Command of the Mediterranean Force.

Headquarters Staff, &c.

Major J. J. Griffiths, F.R.C.V.S.; Lieutenant-Colonel W. J. Tatam; Colonel E. Taylor; Major E. S. Oliver; Captain C. M. Stewart; Sergeant P. W. Bunn, 320; Lance-Sergeant (temporary Sergeant) F. Skinner, 232; Lance-Corporal (temporary Sergeant) G. R. Osborne, 340; Private (temporary Sergeant) A. W. Baird, 3663.

Captain C. L. O'Gorman, Australian A.V.C.

July 13.

The following is a list of officers and men brought to notice by Major-General C. V. F. Townshend, C.B., D.S.O., in connection with the operations under his command:—

Lieutenant P. J. Kerr, Indian A.V.S. Reserve of Officers; Acting Shoeing Smith R. Rudd, 1881, 21st Lancers; Syce (Acting Driver) Gunga Din, 6.

NOTE.—All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C. Telephone, 4646 Gerrard. Telegrams, "Baillière, London."

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